# DETERMINATION OF GLYCOL CONTAMINATION IN ENGINE OIL BY INFRARED AND UV-VIS SPECTROSCOPY

TORREY E. HOLLAND, ROBINSON KARUNANITHY, *Physics, Southern Illinois University Carbondale, Carbondale, IL, USA*; ALI MAZIN ABDUL-MUNAIM, *Plant, Soil, and Agricultural Systems, Southern Illinois University Carbondale, Carbondale, IL, USA*; P SIVAKUMAR, *Physics, Southern Illinois University Carbondale, Carbondale, IL, USA*; DENNIS G. WATSON, *Plant, Soil, and Agricultural Systems, Southern Illinois University Carbondale, Carbondale, IL, USA*.

We investigated the ethylene glycol, which is the crucial ingredient in the automotive antifreeze coolants, the content of engine oil at various levels of contamination using Fourier transform infrared (FT-IR) spectroscopy and ultraviolet-visual spectroscopy (UV-Vis). It is known that glycol in SAE 15W-40 diesel engine lubricating oil has relatively strong signatures in the infrared spectrum, some of which overlap with other molecular bonds that may already be present in engine oil. Therefore, our aim is to correlate this FT-IR data with a UV-Vis spectrograph such that detection of glycol's presence can be improved significantly.